CLAIMS

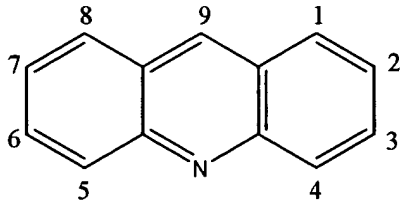
What is claimed is:

1. A method of treating disease resulting from malformed proteins from a mammal comprising:

administering to said mammal a therapeutically effective amount of a bis-cyclic compound;

wherein said bis-cyclic compound is characterized by clearing malformed proteins and by an ability to cross a blood brain barrier of said mammal.

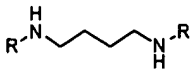
2. The method of claim 1, wherein the compound is comprised of a linking group which covalently binds together two cyclic moieties having the general structural formula I:

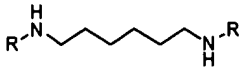


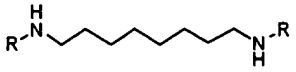
Acridine

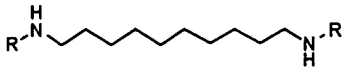
wherein each of positions 1-9 may be independently substituted.

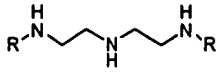
3. The method of claim 2, wherein the linking group is chosen from

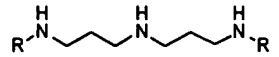
a 

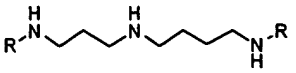
b 

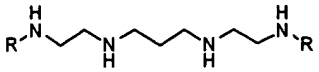
c 

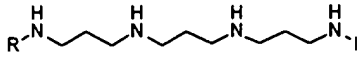
d 

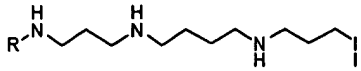
e 

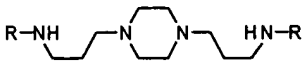
f 

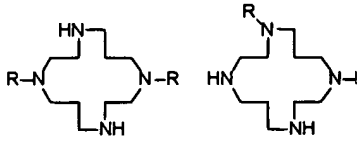
g 

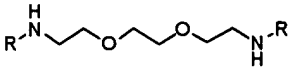
h 

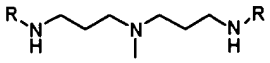
i 

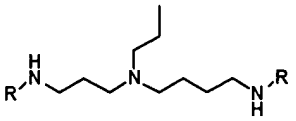
j 

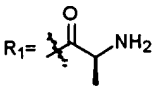
k 

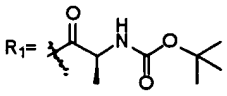
l 

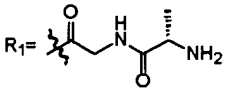
m 

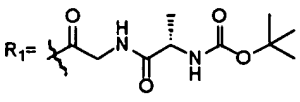
n 

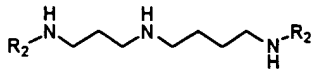
o 

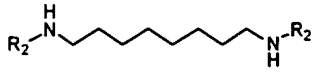
p 

q 

r 

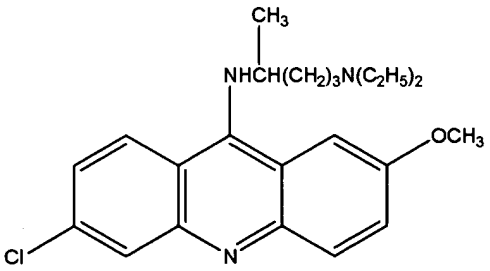
s 

t 

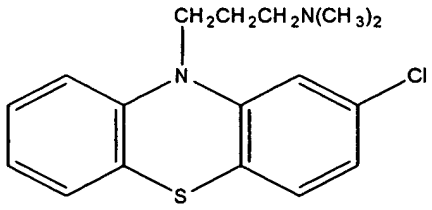
u 

wherein each "R" is independently any moiety of formula I.

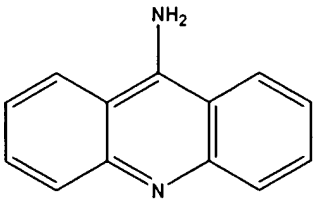
4. The method of claim 3, wherein each "R" is independently chosen from



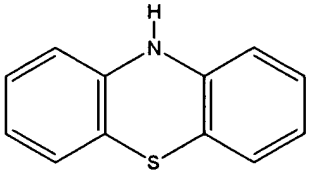
Quinacrine



Chlorpromazine



9-aminoacridine

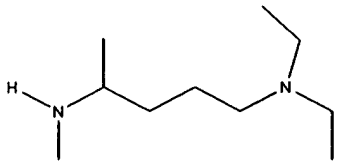


Phenothiazine

5. The method of claim 3, wherein each "R" is quinacrine.

6. The method of Claim 1, wherein said mammal is selected from the group consisting of a human, cow, pig, sheep and goat.

7. The method of Claim 1, wherein a position chosen from positions 1-9 of formula I is substituted with a moiety chosen from



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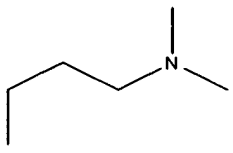


8. The method of Claim 1, wherein a position chosen from position 1-9 of formula I is substituted with a moiety chosen from

-H, $-NH_2$, $-CH_2CH_2CH_2N(CH_3)_2$; and
$-NHCH(CH_3)(CH_2)_3N(C_2H_5)_2$.

9. The method of Claim 1, wherein the malformed protein and its associated disease is selected from the group consisting of:

Disease	Insoluble Proteins
Alzheimer's Disease	APP, Aβ peptide, α1-antichymotrypsin, tan, non-Aβ component
Prion diseases, Creutzfeld Jakob disease, scrapie and bovine spongeform Encephalopathy	PrP^{Sc}
ALS	SOD and neurofilament
Pick's disease	Pick body
Parkinson's disease	Lewy body
Diabetes Type 1	Amylin
Multiple myeloma--plasma cell dyscrasias	IgGL-chain
Familial amyloidotic	Transthyretin

polyneuropathy	
Medullary carcinoma of thyroid	Procalcitonin
Chronic renal failure	β_2--microglobulin
Congestive heart failure	Atrial natriuretic factor
Senile cardiac and systemic amyloidosis	Transthyretin
Chronic inflammation	Serum amyloid A
Atherosclerosis	ApoA1
Familial amyloidosis	Gelsolin.

10. The method of Claim 1, wherein the disease and its associated malformed prion is selected from the group consisting of

Alzheimer's Disease	APP, Aβ peptide, α1-antichymotrypsin, tan, non-Aβ component
Prion diseases, Creutzfeld Jakob disease, scrapie and bovine spongeform Encephalopathy	PrP^{Sc}
Parkinson's disease	Lewy body
Diabetes Type 1	Amylin
Familial amyloidotic polyneuropathy	Transthyretin.

11. The method according to Claim 8, wherein the oral administration step is in an amount of about 100 mg to 10,000 mg/day/75 kg of body weight.

12. The method of Claim 1, wherein the administration step comprises administration by injection.

13. The method of Claim 1, wherein the administration step comprises a technique selected from the group consisting of transdermal administration, subcutaneous injection, intravenous injection, intraperitoneal injection, intramuscular injection, intrasternal injection, intrathecal injection, intranasal, and infusion techniques.

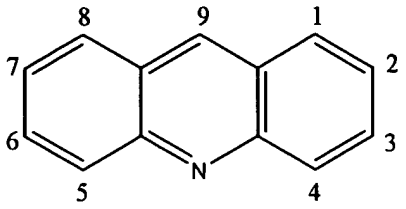
14. The method as claimed in Claim 5, wherein the quinacrine is 100% dextrorotary quinacrine.

15. The method of Claim 5, wherein the mammal is suffering from Creutzfeldt-Jakob disease.

16. The method of Claim 5, wherein the mammal is suffering from a disease selected from the group consisting of scrapie, transmissible spongioform encephalopathy (TSE), Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis, multiple sclerosis, autism, schizophrenia, bipolar disorders, fronto-temporal dementia, Pick's disease, progressive supranuclear palsy, diffuse Lewy body disease, systemic lupus erythematosus, rheumatoid arthritis, Huntington's disease, spinocerebellar ataxias, diabetes mellitus, Types I and II, Crohn's disease, ulcerative colitis, systemic amyloidosis, primary amyloidosis, polyneuropathy and AIDS.

17. A composition for treating livestock with malformed proteins comprising:
livestock feed; and
a bis-cyclic compound.

18. The composition for treating livestock afflicted with malformed proteins as claimed in claim 17, wherein the compound is comprised of a linking group which covalently binds together two cyclic moieties having the general structural formula I:



Acridine

wherein each of positions 1-9 may be independently substituted.

19. A method for clearing malformed proteins from livestock, said method comprising:

a. administering a pharmaceutically effective amount of the composition of Claim 17; and

b. repeatedly providing said livestock feed to livestock over a therapeutically effective period of time.

20. A method for clearing malformed proteins from livestock, said method comprising:

a. administering a pharmaceutically effective amount of the composition of Claim 18; and

b. repeatedly providing said livestock feed to livestock over a therapeutically effective period of time.

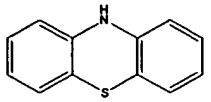
21. A composition, comprising:

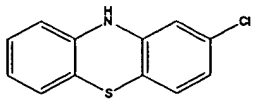
livestock feed; and

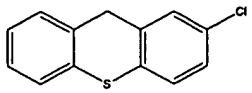
a bis-compound comprising two tricyclic moieties covalently bound by a linking group.

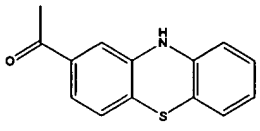
22. The composition of claim 21, wherein both of the tricyclic moieties are quinacrine.

23. The composition of Claim 21, wherein the tricyclic moiety is chosen from









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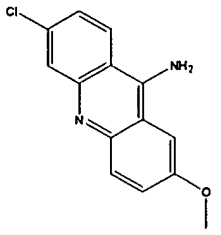
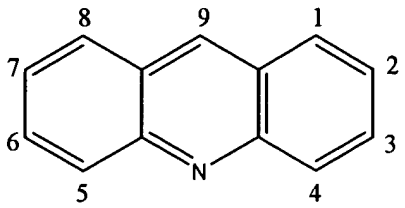


24. A composition, comprising:

a pharmaceutically acceptable carrier; and

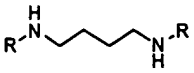
a bis-cyclic compound, comprised of two cyclic moieties covalently bound together by a linking group, wherein the cyclic moieties have the general structural formula I

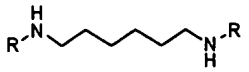


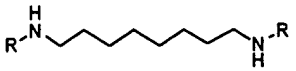
Acridine

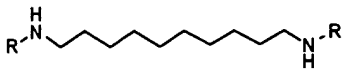
wherein each of positions 1-9 may be independently substituted.

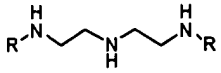
25. The composition of claim 24, wherein the linking group is chosen from

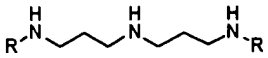
a 

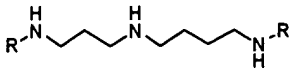
b 

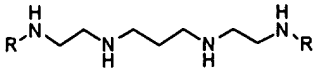
c 

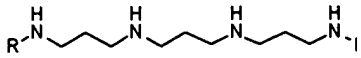
d 

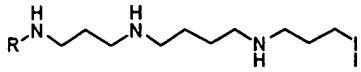
e 

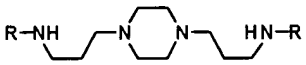
f 

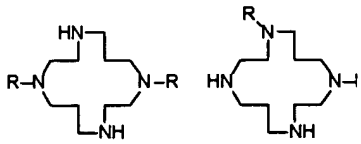
g 

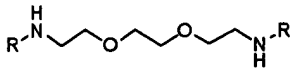
h 

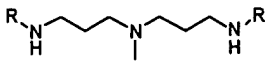
i 

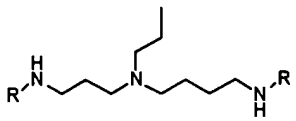
j 

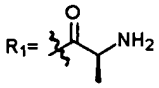
k 

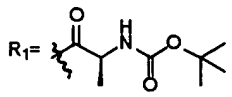
l 

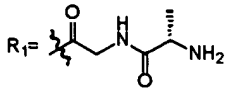
m 

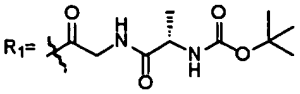
n 

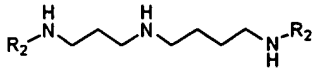
o 

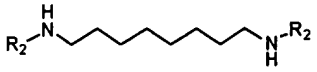
p 

q 

r 

s 

t 

u 

26. A compound chosen from bis-(6-chloro-2-methoxy-acridin-9-yl) and an analog thereof.

27. A compound chosen from bis-(7-chloro-2-methoxy-benzo[*b*][1,5]naphthyridin-10-yl) and an analog thereof

28. A compound chosen from (6-chloro-2-methoxy-acridin-9-yl)-(3-{4-[3-(6-chloro-2-methoxy-acridin-9-ylamino)-propyl]-piperazin-1-yl}-propyl)-amine, *N*,*N*'-bis-(6-chloro-2-methoxy-acridin-9-yl)-1,8-diamino-3,6-dioxaoctane, and (1-{[4-(6-chloro-2-methoxy-acridin-9-ylamino)-butyl]-[3-(6-chloro-2-methoxy-acridin-9-ylamino)-propyl]-carbamoyl}-ethyl)-carbamic acid *tert*-butyl ester.